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CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS 1993-1997: STATEWIDE REPORT

Bureau of Health Statistics, Research and Evaluation
Daniel J. Friedman, Ph.D., Assistant Commissioner

Massachusetts Cancer Registry
Susan T. Gershman, M.S., M.P.H., Ph.D., C.T.R., Director

250 Washington Street
Boston, MA 02108 - 4619

MARCH 2000

ACKNOWLEDGMENTS

This report was prepared by Susan T. Gershman, Director, Massachusetts Cancer Registry, and Massachusetts Cancer Registry staff and consultants. Special thanks to Laurie MacDougall for her diligent work in the preparation of this report. Thanks are given to the MCR data acquisition and quality control staff for their editing and data processing efforts. Thanks are given to Dennis Sterzin of the Graphics staff for his cover design. The contributions of Mary McLaughlin and other staff in the Division of Data Processing, and the staff in approximately 87 reporting hospitals are gratefully acknowledged.

Massachusetts Cancer Registry Staff

Susan T. Gershman, M.S., M.P.H., Ph.D., C.T.R., *Director*

Nancylee Campbell, C.T.R., *Cancer Registrar*
Robert A. Danley, Ph.D., *Demographer*
Debra Dinkins, *Cancer Registrar*
Victor Hong, *Programmer Analyst*
Loi Huynh, *Software Developer*
Regina Kenney, *Data Editor*
Mary Jane King, C.T.R., *Data Acquisition Supervisor*
John A. Locke, M.P.H., *Geocoder*
Laurie A. MacDougall, M.S., *Epidemiologist*
Ann MacMillan, *Data Analyst*
Roberta McLaughlin, C.T.R., *Cancer Registrar*
Mary Mroszczyk, C.T.R., *Geocoding Coordinator*
Sadie Phillips Scott, *Administrative Assistant*
David Rousseau, *Quality Assurance Supervisor*
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C. Douglas Taylor, M.D.
Carol Venuti, C.T.R.

For further information, please contact the following:

Massachusetts Cancer Registry ..... (617) 624-5645
Research and Epidemiology ..... (617) 624-5600
Occupational Health Surveillance ..... (617) 624-5600
Bureau of Environmental Health Assessment ..... (617) 624-5757
Massachusetts Department of Public Health website ..... www.state.ma.us/dph

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INTRODUCTION

Content

This report:

- provides statewide information on cancer incidence in Massachusetts for twenty-three types of cancer for 1993 through 1997;
- compares the four most commonly occurring types of cancer in males and females for 1993 through 1997;
- compares Massachusetts average cancer incidence for 1993-1997 with 1992-1996[1] data from the Surveillance, Epidemiology, and End Results (SEER) program, which collects cancer incidence data from nine geographic areas in the United States;
- compares Massachusetts cancer mortality for 1993-1997 with 1992-1996 U.S. mortality[1]; and
- reviews Massachusetts cancer incidence trends for 1993 through 1997.

The report is organized into the following four sections:

METHODS provides a detailed explanation of the data collection, data processing and statistical techniques employed in this report.

CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS provides an overview of cancer incidence and cancer mortality in Massachusetts from 1993 through 1997. For selected cancer sites, comparisons are made to data from the SEER program.

TABLES 1 - 3 present data for twenty-three types of cancer, by sex, for 1993-1997.

> **Table 1** provides the number of cases and the proportion of all cases represented by each cancer type;
>
> **Table 2** presents and compares age-adjusted cancer incidence rates for Massachusetts, 1993-1997, and the SEER areas, 1992-1996;
>
> **Table 3** presents and compares age-adjusted cancer mortality rates for Massachusetts, 1993-1997 and the U.S., 1992-1996;

APPENDICES I - III provide data supplemental to this report.

> **Appendix I** provides a listing of ICD (International Classification of Diseases) codes used for the preparation of this report;
>
> **Appendix II** provides age-adjusted incidence rates for selected cancer sites, by sex, for individual years from 1993 through 1997;
>
> **Appendix III** provides age-specific incidence rates for selected sites, by sex, for 1993-1997.

[1] 1992-1996 was the most recent period for which SEER incidence data and U.S. mortality data were available at the time this report was prepared.

Comparison with Previous Reports

This report updates previous annual reports published by the Massachusetts Cancer Registry (MCR), and also provides a basis for comparison of cancer information to be contained in future reports.

This ***Statewide Report*** provides cancer incidence and mortality information for 1993-1997. The most recent ***City/Town Supplement,*** which contains standardized incidence ratios for selected cancers for the 351 towns and cities in Massachusetts for the period 1990-1995, was released in November, 1999. The 1992-1996 City/Town Supplement will be published online in 2000.

METHODS

Data Collection

The MCR collects reports of all newly diagnosed cancer cases from all Massachusetts acute care hospitals (83 reporting facilities in 1997). The MCR compiles summaries of cancer incidence, such as this report, and also produces special reports. These undertakings require data collection efforts that necessitate extensive interaction with hospital tumor registrars. Intensive data evaluation is also required to ensure data quality. The fundamental requirements of any central cancer registry include: (1) complete registration, (2) prevention of duplication, (3) collection of uniform data, i.e., standardization of items, definitions, rules, classification and nomenclature of primary site, histology, staging and procedures, (4) quality control, and (5) efficient data processing.

The Massachusetts data summarized in this report are drawn from data entered on MCR computer files on or before July 29, 1999 and from death clearance activities completed in November, 1999 (see below). The numbers herein may change slightly in future reports, reflecting late reported cases or corrections based on subsequent details from the reporting facilities. Such changes might result in slight differences in numbers and rates in future research studies using MCR data. This is the nature of population-based cancer registries, which receive case reports on an ongoing basis.

The MCR began conducting “death clearance” in 1999 in order to identify cases of cancer reported on death certificates which had not been reported to the MCR. In conducting death clearance, the MCR database for 1995-1997 was linked with that of the Massachusetts Department of Public Health’s Registry of Vital Records and Statistics (1997 resident deaths only). This was done to identify death certificates with any mention of cancer that do not match previously reported cases. These records were then followed back to determine if the cases met MCR reporting requirements. If they should have been submitted by a reporting facility, information was obtained from that facility, and the case was added to the MCR database. Cases for which the death certificate provided the only information regarding a diagnosis of cancer were also added to the database for 1997, and are referred to as “death certificate only” cases. This addition of cases results in changes in 1997 rates, particularly for those cancers with poor survival rates, such as liver cancer and pancreatic cancer.

MCR files are currently estimated to contain data on approximately 90% of all reportable cases. This has increased for 1997 due to the performance of death clearance. A more precise estimate will not be possible until cases identified only by outpatient facilities and physicians' offices are tracked, however. Based on estimates of the number of cases projected by the American Cancer Society and comparisons with rates in Connecticut and other SEER areas, Massachusetts data are reasonably complete.

Coding for primary cancer sites in this report follows the International Classification of Diseases for Oncology (ICD-O, Second Edition) system. The list of reportable neoplasms is the same as that used for SEER program data with the exception of *in situ* neoplasms.

SEER includes *in situ* bladder cases in their age-adjusted bladder cancer incidence rates; however, the MCR does not. The MCR began collecting data on *in situ* neoplasms diagnosed as of January 1, 1992; however, *in situ* cases are not included in this report. Comparisons between SEER and MCR data are valid because the codes used for primary site selection are identical (Appendix I).

Data Presentation

Time Periods

This publication focuses on cancer incidence and mortality in Massachusetts for the time period 1993-1997. Other cancer data presented herein may encompass different aggregate years because of availability at the time of publication. For incidence data in the SEER areas and U.S. mortality data as published by the National Cancer Institute, aggregate data are only available for 1992-1996 (see Ries *et al.* in REFERENCES).

Age-Adjusted Rates

National (SEER) incidence rates, U.S. mortality rates and Massachusetts statewide incidence and mortality rates are sex-specific, age-adjusted rates per 100,000 population, and are calculated by the direct method using the 1970 U.S. Bureau of the Census population distribution as the standard.[2] Rates are age-adjusted using five-year age groups to correct for differences in the age distributions of different populations. Rates adjusted to the same standard can be compared. It is important to note that differences in methodologies used in calculating rates, such as number of age groups used, may cause slight variations in results.

For the computation of Massachusetts age-adjusted incidence and mortality rates in this report, the statewide population for individual years is derived from Massachusetts Department of Public Health estimates based on 1990 U.S. Bureau of the Census counts and 1995 population estimates released by the Massachusetts Institute for Social and Economic Research (MISER) in July, 1998. For reports prior to *Cancer Incidence in Massachusetts, 1982-1989*, the statewide population for individual years was derived from estimates based on 1980 U.S. Bureau of the Census counts and 1990 projections obtained from MISER. If rate comparisons are made to any of these prior reports, data may vary slightly due to these population adjustments.

National age-adjusted incidence rates in this report are obtained from the National Cancer Institute's SEER program data, representing the largest cancer incidence database in the U.S. These data serve as a stable reference point because the SEER areas include

[2] It should be noted that the age-adjusted cancer mortality rates presented in this report cannot be compared to those appearing in the Massachusetts Department of Public Health's *Advance Data: Deaths* series because the latter rates are adjusted to the 1940 U.S. Standard Population. This report adjusts to the 1970 U.S. Standard Population for consistency with procedures used by the National Cancer Institute.

approximately 10% of the U.S. population. The SEER program incidence data included in this report are from population-based cancer registries in five states (Connecticut, Hawaii, Iowa, New Mexico and Utah) and six standard metropolitan statistical areas (Atlanta, Georgia; Detroit, Michigan; Los Angeles, San Francisco-Oakland, San Jose-Monterey, California; and Seattle-Puget Sound, Washington).

U.S. age-adjusted mortality rates in this report are obtained from the National Center for Health Statistics, as published by the National Cancer Institute's SEER program.

Age-Specific Rates

Massachusetts statewide age- and sex-specific rates per 100,000 residents are given for twenty-three selected types of cancer and all types of cancer combined in Appendix III.

Data Limitations

Three limitations must be considered when interpreting cancer incidence data in this report: under-reporting in areas close to neighboring states; under-reporting for cancers that may not be diagnosed in hospitals; and minor incidence changes resulting in misleadingly large percent differences for rare types of cancer.

Border Areas and Neighboring States

Some areas of Massachusetts appear to have low cancer incidence, but this may be due to loss of cases in Massachusetts residents that were diagnosed in neighboring states and not reported to the MCR. Presently the MCR has reciprocal reporting agreements with the following fifteen states: Alaska, Arkansas, Connecticut, Florida, Maine, Mississippi, New Hampshire, New York, North Carolina, Rhode Island, South Carolina, Texas, Vermont, Wisconsin and Wyoming.

Cases Diagnosed in Non-Hospital Settings

During the time period covered by this report (1993 through 1997), only Massachusetts hospitals reported newly diagnosed cases of cancer to the MCR. Some types of cancer in this report may be under-reported because they are diagnosed by private physicians, private laboratories, health maintenance organizations or radiotherapy centers that escape the case identification systems used by hospitals. Particular examples include melanoma of the skin, prostate cancer and certain hematologic malignancies such as leukemia and multiple myeloma. The extent of this under-reporting has not been determined exactly, but cases included in this report represent the great majority of cases statewide and provide an essential basis for observing statewide cancer incidence patterns.

Percent Differences

The interpretation of percent increases or decreases should be viewed with caution. Apparent increases or decreases in cancer incidence over time may reflect changes in diagnostic methods or case reporting rather than true changes in cancer occurrence. Also, a percent increase or decrease in cases for a cancer with a higher incidence rate has greater public health significance, since larger numbers of patients are affected. For a cancer with a base incidence rate of 100 cases per 100,000 residents, an increase of 25% adds 25 cases per 100,000; for a rarer cancer with a base rate of only 8 cases per 100,000, the same increase (25%) adds only 2 cases per 100,000.

CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS

Cancer Incidence and Mortality (1993-1997)

In Massachusetts from 1993 through 1997, there were 149,161[3] newly diagnosed cases of cancer -- 74,870 in males and 74,257 in females (Table 1).

For all types of cancer combined for 1993-1997, the average annual age-adjusted incidence rate among males was 476.6 cases per 100,000 (Table 2). The most commonly diagnosed type of cancer in Massachusetts males for 1993-1997 was prostate cancer, followed by cancer of the bronchus and lung, colon/rectum, and urinary bladder (Figure 1).

For all types of cancer combined for 1993-1997, the average annual age-adjusted incidence rate among females was 354.2 cases per 100,000 (Table 2). Among Massachusetts females, the most commonly diagnosed cancer types were cancers of the breast, colon/rectum, bronchus and lung, and corpus uteri (Figure 1). (Although cancer of the lung and bronchus had a higher age-adjusted incidence rate than did cancer of the colon/rectum during this period, more women were diagnosed with the latter.)

In both sexes, the four leading types of cancer comprised over 60% of all new cancer cases for this time period (Figure 1). No other type of cancer constituted more than 5% of new cases in either sex.

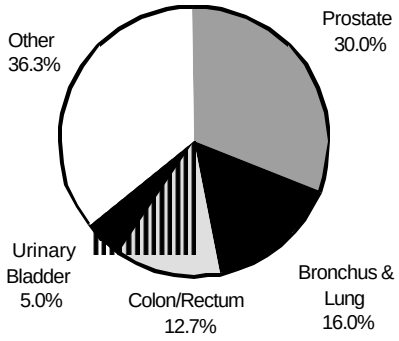
[3] The male and female case counts will not add up to the total case count because the MCR added two additional gender classifications (transsexuals and persons with sex chromosome abnormalities/hermaphrodites) for cases diagnosed as of January 1, 1995. Cases diagnosed before this date were limited to male or female only.

Figure 1

DISTRIBUTION OF CANCER INCIDENCE IN MASSACHUSETTS, 1993-1997

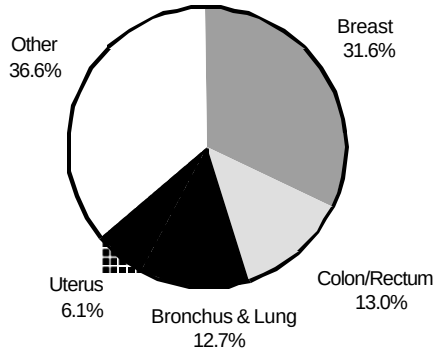
by Cancer Type and Sex

MALES



total number of cases = 74,870

FEMALES



total number of cases = 74,257

Data for the four leading types of newly diagnosed cancers among males and females for 1993-1997 are summarized below.

Massachusetts Incidence, 1993-1997

MALES

Cancer Site	% of all Cases	Age-adjusted incidence rate (per 100,000)
Prostate	30.0%	145.6
Bronchus & Lung	16.0%	76.8
Colon / Rectum	12.7%	59.4
Urinary Bladder	5.0%	23.4
total:	**63.7%**	

FEMALES

Cancer Site	% of all Cases	Age-adjusted incidence rate (per 100,000)
Breast	31.6%	116.2
Colon / Rectum	13.0%	40.1
Bronchus & Lung	12.7%	46.3
Corpus Uteri	6.1%	23.1
total:	**63.4%**	

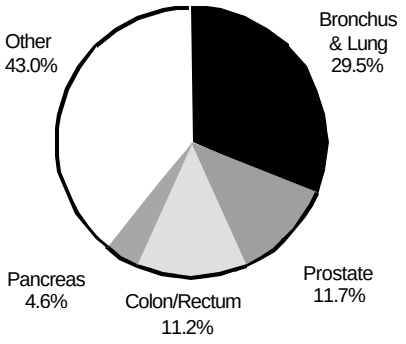
For the time period 1993-1997, the leading age-adjusted cancer mortality rates among both males and females were for cancers of the bronchus and lung (Table 3).

Figure 2

DISTRIBUTION OF CANCER MORTALITY IN MASSACHUSETTS, 1993-1997

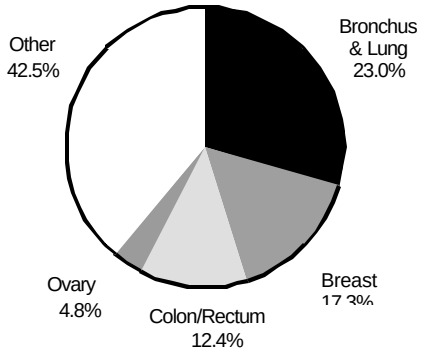
by Cancer Type and Sex

MALES



total number of deaths = 34,604

FEMALES



total number of deaths = 34,906

Data for the four leading types of cancer deaths among males and females for 1993-1997 are summarized below.

Massachusetts Mortality, 1993-1997

MALES

Cancer Site	% of all Cancer Deaths	Age-adjusted mortality rate (per 100,000)
Bronchus & Lung	29.5%	65.2
Prostate	11.7%	24.4
Colon / Rectum	11.2%	24.2
Pancreas	4.6%	10.2
total:	**57.0%**	

FEMALES

Cancer Site	% of all Cancer Deaths	Age-adjusted mortality rate (per 100,000)
Bronchus & Lung	23.0%	36.5
Breast	17.3%	26.8
Colon / Rectum	12.4%	16.1
Ovary	4.8%	7.7
total:	**57.5%**	

Massachusetts Incidence Compared to the U.S.

The overall pattern of cancer incidence in Massachusetts is similar to the national pattern (as measured in the SEER areas). Average annual age-adjusted incidence rates for all cancers in Massachusetts and the SEER areas are presented below. (See Table 2 for comparable rates by cancer site/type.)

TOTAL NUMBER OF CASES PER 100,000:

	MA, 1993-1997	SEER areas, 1992-1996
MALES	476.6	489.1
FEMALES	354.2	345.8
TOTAL	402.4	404.8

In the following summary, two simultaneous criteria have been employed to determine whether relative excesses or deficits existed for individual types of cancer in Massachusetts for 1993-1997 compared to the SEER areas in 1992-1996: first, the average annual age-adjusted incidence rate in Massachusetts for 1993-1997 is at least 20% higher or lower than the SEER areas' rate for 1992-1996; and second, the average annual age-adjusted incidence rate in Massachusetts is at least five cases per 100,000 residents for 1993-1997.

MALES

A relative excess existed for:

- esophagus
  1993-1997 MA rate: 8.7/100,000 1992-1996 SEER rate: 6.5/100,000 (MA 33.8% above SEER)
- larynx
  1993-1997 MA rate: 8.6/100,000 1992-1996 SEER rate: 7.1/100,000 (MA 21.1% above SEER)

A relative deficit existed for:

- leukemia
  1993-1997 MA rate: 10.4/100,000 1992-1996 SEER rate: 13.2/100,000 (MA 21.2% below SEER)

FEMALES

A relative excess existed for:

- brain and central nervous system
  1993-1997 MA rate: 5.9/100,000 1992-1996 SEER rate: 4.9/100,000 (MA 20.4% above SEER)

Cancer Incidence and Mortality Trends

Incidence

When incidence rates are compared for the two endpoints of this report (1993 and 1997), cancer incidence decreased 1.8% in males, but increased 2.6% in females (an 0.8% increase overall). It is important to note, however, that rates for 1997 include cases identified only on death certificates, which were not available for previous years. This addition of cases elevated incidence rates by 10% or more for certain cancers, such as pancreatic cancer and liver cancer, which have shorter survival times and may not be diagnosed prior to death. Rates for 1997 may not be directly comparable to those for previous years because of this inclusion of "death certificate only" cases. Incidence patterns may appear different than expected, with some cancers exhibiting no change in -- or even overall increases in -- incidence rates despite prior trends downward. However, increases and decreases can be seen to occur through time in the leading cancers affecting Massachusetts men and women. (See Appendix II for the age-adjusted incidence rates presented here, and Figures 3A, 3B, 4A, 4B, and 5-7 for a more detailed summary of incidence and mortality trends for the leading cancers and others discussed here.)

Males

Among Massachusetts males, the incidence of prostate cancer decreased 1.7% between 1993 and 1997. The 1993 incidence rate was 152.8 cases per 100,000 males, and the 1997 rate decreased to 150.2 cases per 100,000 males. A similar decline has been seen nationally. Devesa *et al.* (see REFERENCES) attribute national increases in prostate cancer incidence over the past decade to changes in diagnostic methodology. Transurethral resections were performed more frequently in the 1980s than in the preceding decade, resulting in increased detection of cases which would have been undetectable by clinical means. Other diagnostic procedures [such as serum testing for prostate-specific antigen (PSA), ultrasound-guided needle biopsy, computed axial tomography (CAT scanning) and bone scanning] have also increased the number of prostate cancer diagnoses in recent years. Wingo *et al.* (1998; see REFERENCES) attribute the more recent downtrends in prostate cancer (since 1992) to the identification of prevalent cases through screening, and then the subsequent falling toward an equilibrium, reflecting only incident cases in the population. Another factor that may be contributing to this decline is incomplete case ascertainment due to increases in outpatient diagnoses that are not reported to central registries. Also, there may have been decreased utilization of PSA screening tests in recent years, which might have been precipitated by recommendations by some organizations against their widespread use during the early 1990s.

Age-adjusted incidence rates declined for the second and third most commonly diagnosed cancers in Massachusetts males. The incidence rate for cancer of the bronchus and lung fell from 81.3 cases per 100,000 males in 1993 to 76.7 cases per 100,000 in 1997, a decrease of 5.7%. Wingo *et al.* (1999; see REFERENCES) attribute the national decline in lung cancer incidence to cancer control and research programs. Colorectal cancer also declined from 1993 to 1997. The incidence rate fell from 62.7 cases per 100,000 males in 1993 to 58.3 cases per 100,000 in 1997, a decrease of 7.0%. Troisi *et al.* (see REFERENCES) used SEER data to show overall decreases in the incidence rates of colorectal cancer. They noted stage-specific shifts which they attributed to earlier detection, most likely due to screening.

Non-Hodgkin's lymphoma increased an overall 3.9% among Massachusetts males between 1993 and 1997. In 1993, 17.9 males per 100,000 were diagnosed with non-Hodgkin's lymphoma; by 1996, the number of cases rose to a peak incidence of 19.7 per 100,000, an increase of 10.1%. In 1997 this rate declined to 18.6 per 100,000. Devesa *et al.* attribute the rise in national incidence rates to changes in case classification, greater exposure to potential causative agents, and the increasing incidence of AIDS-related lymphomas. The rate of increase in non-Hodgkin's lymphomas, however, has slowed in recent years. Wingo *et al.* (1998) attribute this declining percent increase to the beneficial effects of antiretroviral therapies on the rate of HIV progression.

Incidence of melanoma of the skin continued to increase among Massachusetts males. In 1993, 12.9 males per 100,000 were diagnosed with melanoma of the skin. By 1997, the incidence rate had risen to 15.6 per 100,000, an increase of 20.9%. Devesa *et al.* attribute this rise in incidence to increased exposure to solar radiation due to changing recreational and clothing habits.

Females

Among Massachusetts females, breast cancer incidence was fairly stable, increasing 1.2% between 1993 and 1997. The incidence rate increased from 116.9 cases per 100,000 females in 1993 to 118.3 cases per 100,000 in 1997. The overall increase in female breast cancer incidence that has occurred over time now appears to have levelled off. Devesa *et al.* attribute most of the increase in national breast cancer incidence to the earlier detection of tumors resulting from increasing use of mammography and other screening techniques. Other contributing factors may include changes in diet, alcohol consumption, the long-term use of hormone replacement therapy, and certain reproductive variables (such as later age at first childbirth).

The second most common cancer among Massachusetts females, colorectal cancer, increased 1.5% between 1993 and 1997. The 1993 incidence rate was 40.6 cases per 100,000 females, and the 1997 rate was 41.2 cases per 100,000. The incidence of cancers of the bronchus and lung continues to increase among Massachusetts females, rising from 43.6 cases per 100,000 females in 1993 to 49.2 cases per 100,000 in 1997, an increase of 12.8%. Wingo *et al.* (1999) noted that the prevalence of smoking in women has lagged behind that in men, reaching a peak of 55% in the cohort of women born between 1935 and

1944. Consequently, the incidence of lung cancer is still increasing in women, reflecting the historical pattern of cigarette smoking. Uterine cancer, the fourth most common cancer among Massachusetts females, remained stable from 1993 to 1997. The 1993 incidence rate of 23.1 cases per 100,000 females fell to 23.0 cases per 100,000 in 1997, a decrease of 0.4%.

Mortality

When cancer mortality rates are compared for the two endpoints of this report (1993 and 1997), certain changes are notable. For males, decreasing death rates have been observed nationally and in Massachusetts for lung and prostate cancers. Wingo *et al.* (1999) attribute decreasing national lung cancer mortality rates to decreased smoking rates over the past thirty years. The decrease in smoking among women, however, has lagged behind that of men, and lung cancer mortality continues to rise in women. For Massachusetts females, lung cancer replaced breast cancer as the leading cause of cancer deaths in women in 1989, and female lung cancer death rates have since continued to increase while breast cancer death rates have decreased. Wingo *et al.* (1998) attribute the downtrend in national breast cancer mortality to the incorporation of breast cancer screening into routine medical care. Advances in the treatment of breast cancer also contribute to the decline in breast cancer mortality.

For colorectal cancer, the decreases in mortality among males and females are not well understood. Wingo *et al.* (1998) suggest several possibilities, including increased polyp removal, advances in treatment protocols (e.g., new surgical techniques and adjuvant therapies), and other factors, such as changes in dietary patterns. The explanation for the decline in prostate cancer mortality is also uncertain.

TABLES

Table 1.
CANCER INCIDENCE BY SEX
Massachusetts, 1993-1997

	Males		*Females*		*Total* [1]	
Cancer Site / Type	***Number***	***Percent***	***Number***	***Percent***	***Number***	***Percent***
All Sites	74870	100.0	74257	100.0	149161	100.0
Brain & Central Nervous System	1238	1.7	1104	1.5	2342	1.6
Breast	243	0.3	23497	31.6	23745	15.9
Bronchus & Lung	11944	16.0	9435	12.7	21386	14.3
Cervix Uteri	0	0.0	1524	2.1	1524	1.0
Colon / Rectum	9484	12.7	9683	13.0	19172	12.9
Corpus Uteri & Uterus, NOS	0	0.0	4501	6.1	4502	3.0
Esophagus	1342	1.8	497	0.7	1839	1.2
Hodgkin's Disease	624	0.8	499	0.7	1124	0.8
Kidney & Renal Pelvis[2]	2150	2.9	1352	1.8	3503	2.4
Larynx	1298	1.7	374	0.5	1672	1.1
Leukemia	1603	2.1	1282	1.7	2886	1.9
Liver & Intrahepatic Bile Ducts	746	1.0	327	0.4	1073	0.7
Melanoma of Skin	2227	3.0	1836	2.5	4063	2.7
Multiple Myeloma	686	0.9	672	0.9	1358	0.9
Non-Hodgkin's Lymphoma	3006	4.0	2764	3.7	5773	3.9
Oral Cavity & Pharynx	2420	3.2	1230	1.7	3650	2.5
Ovary	0	0.0	2828	3.8	2829	1.9
Pancreas	1420	1.9	1582	2.1	3003	2.0
Prostate	22464	30.0	0	0.0	22465	15.1
Stomach	1623	2.2	1043	1.4	2668	1.8
Testis	907	1.2	0	0.0	908	0.6
Thyroid	457	0.6	1237	1.7	1694	1.1
Urinary Bladder	3751	5.0	1501	2.0	5254	3.5
Other Sites	5237	7.0	5489	7.4	10728	7.2

[1] Totals also include persons classified as transsexuals or hermaphrodites, and persons of unknown sex.

[2] Massachusetts rates for this site include codes 64.9 & 65.9 (ICD-O-2) only for comparability. Massachusetts hospital coding conventions may have assigned some

Table 2.
AGE-ADJUSTED[1] INCIDENCE RATES[2] FOR SELECTED CANCER SITES BY SEX
Massachusetts Residents, 1993-1997, and SEER Registries, 1992-1996

	Males		*Females*		*Total*	
Cancer Site / Type	***Massachusetts***	***SEER***	***Massachusetts***	***SEER***	***Massachusetts***	***SEER***
All Sites	476.6	489.1	354.2	345.8	402.4	404.8
Brain & Central Nervous System	8.0	7.3	5.9	4.9	6.8	6.0
Breast	1.5	0.9	116.2	110.6	64.3	60.2
Bronchus & Lung	76.8	75.9	46.3	42.8	59.0	57.0
Cervix Uteri	- - -	- - -	7.6	7.9	- - -	- - -
Colon / Rectum	59.4	53.0	40.1	37.6	48.1	44.3
Corpus Uteri & Uterus, NOS	- - -	- - -	23.1	21.5	- - -	- - -
Esophagus	8.7	6.5	2.1	1.7	5.0	3.9
Hodgkin's Disease	3.9	3.0	2.8	2.4	3.3	2.7
Kidney & Renal Pelvis[3]	13.8	12.9	6.6	6.5	9.8	9.3
Larynx	8.6	7.1	2.0	1.5	4.9	4.0
Leukemia	10.4	13.2	6.5	8.0	8.1	10.3
Liver & Intrahepatic Bile Ducts	4.8	5.7	1.5	2.1	2.9	3.7
Melanoma of Skin	13.8	16.0	9.1	10.8	11.0	13.0
Multiple Myeloma	4.4	5.5	3.1	3.7	3.6	4.5
Non-Hodgkin's Lymphoma	18.4	19.7	12.6	12.5	15.2	15.8
Oral Cavity & Pharynx	15.6	15.5	6.0	6.0	10.3	10.3
Ovary	- - -	- - -	14.4	14.6	- - -	- - -
Pancreas	9.1	10.2	6.9	7.8	7.8	8.9
Prostate	145.6	156.5	- - -	- - -	- - -	- - -
Stomach	10.2	10.4	4.2	4.4	6.7	7.0
Testis	4.8	4.5	- - -	- - -	- - -	- - -
Thyroid	2.7	2.9	6.4	7.4	4.6	5.2
Urinary Bladder[4]	23.4	28.9	6.3	7.7	13.3	16.8

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000

[3] Massachusetts rates for this site include codes 64.9 & 65.9 (ICD-O-2) only for comparability. Massachusetts hospital coding conventions may have assigned some cases to a "not otherwise specified" category.

[4] Massachusetts rates include invasive bladder cancer only.

Table 3.
AGE-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES BY SEX
Massachusetts Residents, 1993-1997, and United States, 1992-1996

	Males		*Females*		*Total*	
Cancer Site / Type	***Massachusetts***	***U.S.***	***Massachusetts***	***U.S.***	***Massachusetts***	***U.S.***
All Sites	217.9	213.1	147.3	140.9	174.1	170.1
Brain & Central Nervous System	5.0	5.1	3.1	3.4	3.9	4.2
Breast	0.3	0.3	26.8	25.4	15.4	14.2
Bronchus & Lung	65.2	70.8	36.5	33.8	48.1	49.5
Cervix Uteri	- - -	- - -	2.0	2.8	- - -	- - -
Colon / Rectum	24.2	21.5	16.1	14.6	19.3	17.5
Corpus Uteri & Uterus, NOS	- - -	- - -	3.3	3.3	- - -	- - -
Esophagus	7.2	6.3	1.7	1.5	4.1	3.6
Hodgkin's Disease	0.6	0.6	0.5	0.4	0.5	0.5
Kidney & Renal Pelvis	5.2	5.0	2.2	2.3	3.4	3.5
Larynx	2.6	2.4	0.5	0.5	1.4	1.3
Leukemia	8.0	8.4	4.5	4.8	5.9	6.3
Liver & Intrahepatic Bile Ducts	5.6	4.9	2.0	2.2	3.5	3.4
Melanoma of Skin	3.6	3.2	1.9	1.5	2.6	2.2
Multiple Myeloma	3.8	3.8	2.3	2.6	2.9	3.1
Non-Hodgkin's Lymphoma	9.0	8.4	5.9	5.5	7.2	6.8
Oral Cavity & Pharynx	4.1	4.2	1.3	1.5	2.5	2.7
Ovary	- - -	- - -	7.7	7.6	- - -	- - -
Pancreas	10.2	9.8	7.5	7.3	8.6	8.4
Prostate	24.4	25.6	- - -	- - -	- - -	- - -
Stomach	6.8	6.1	2.9	2.8	4.5	4.2
Testis	0.3	0.2	- - -	- - -	- - -	- - -
Thyroid	0.4	0.3	0.3	0.4	0.4	0.3
Urinary Bladder	6.7	5.6	2.0	1.7	3.7	3.2

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000

APPENDICES

APPENDIX I

ICD CODES USED FOR THIS REPORT

Cancer Site / Type	*Codes* ICD-O-2*	ICD-9**
Brain & Central Nervous System	C70.0 - C72.9 See **List I** (following) for histology codes.	191.0 - 192.9 (no *in situ* code)
Breast	C50.0 - C50.9 except 9590 - 9980	174.0 - 174.9, 175.0, 175.9 except 233.0
Bronchus & Lung	C34.0 - C34.9 except 9050 - 9053, 9590 - 9980	162.2 - 162.9 except 231.2
Cervix Uteri	C53.0 - C53.9 except 9590 - 9980	180.0 - 180.9 except 233.1
Colon/Rectum	C18.0 - C18.9, C19.9, C20.9, C26.0 except 9590 - 9980	153.0 - 153.9, 154.0, 154.1, 159.0 except 230.3, 230.4
Corpus Uteri & Uterus, NOS	C54.0 - C54.9, C55.9 except 9590 - 9980	179, 182.0 - 182.8 except 233.2
Esophagus	C15.0 - C15.9 except 9590 - 9980	150.0 - 150.9 except 230.1
Hodgkin's Disease	C00.0 - C80.9 (includes O9650 - O9667, P9653 - P9683)	201.0 - 201.9 (no *in situ* code)
Kidney & Renal Pelvis	C64.9, C65.9 except 9590 - 9980	189.0, 189.1 (no *in situ* code)
Larynx	C32.0 - C32.9 except 9590 - 9980	161.0 - 161.9 except 231.0
Leukemia	C00.0 - C80.9 (includes O9800 - O9943, O9951)	202.4, 204.0 - 208.9 (no *in situ* code)

* *International Classification of Diseases for Oncology, 2nd Ed.* (1990) for incidence data

** *International Classification of Diseases, Ninth Revision, Clinical Modification* (1980) for mortality data

Cancer Site / Type	*Codes* ICD-O-2*	ICD-9**
Liver and Intra-hepatic Bile Ducts	C22.0, C22.1 except 9590 - 9980	155.0, 155.1 except 230.8
Melanoma of Skin	C44.0 - C44.9 (includes O8720 - O8790, P8723 - P8783)	172.0 - 172.9 (no *in situ* code)
Multiple Myeloma	C00.0 - C80.9 (includes O9731, O9732, P9733)	203.0 (no *in situ* code)
Non-Hodgkin's Lymphoma	C00.0 - C80.9 See **List II** (following) for histology codes.	200.0 - 200.8, 202.0 - 202.2, 202.8, 202.9 (no *in situ* code)
Oral Cavity & Pharynx	C00.0 - C14.8 except 9590 - 9980	140.0 - 149.9 except 230.0
Ovary	C56.9 except 9590 - 9980	183.0 - 183.9 (no *in situ* code)
Pancreas	C25.0 - C25.9 except 9590 - 9980	157.0 - 157.9 (no *in situ* code)
Prostate	C61.9 except 9590 - 9980	185 except 233.4
Stomach	C16.0 - C16.9 except 9590 - 9980	151.0 - 151.9 except 230.2
Testis	C62.0 - C62.9 except 9590 - 9980	186.0 - 186.9 (no *in situ* code)
Thyroid	C73.9 except 9590 - 9980	193 (no *in situ* code)
Urinary Bladder	C67.0 - C67.9 except 9590 - 9980	188.0 - 188.9 except 233.7

* *International Classification of Diseases for Oncology, 2nd Ed.* (1990) for incidence data

** *International Classification of Diseases*, *Ninth Revision, Clinical Modification* (1980) for mortality data

List I -- Histology Codes for Brain and Central Nervous System Neoplasms

ICD-O	O9370, O9380, O9381, O9382, O9390, O9391, O9392, O9400, O9401, O9410, O9411, O9420, O9421, O9422, O9423, O9424, O9430, O9440, O9441, O9442, O9443, O9450, O9451, O9460, O9470, O9471, O9472, O9473, O9480, O9481, O9490, O9500, O9501, O9502, O9503, O9530, O9539, O9540, O9560, O9561
SNOP	P9363, P9383, P9393, P9403, P9413, P9423, P9433, P9453, P9463, P9473, P9483, P9493, P9503, P9533, P9543, P9563

List II -- Histology Codes for Non-Hodgkin's Lymphomas

ICD-O	O9590 - O9642, O9670 - O9714, O9750
SNOP	P9593 - P9643, P9693 - P9713, P9753

APPENDIX II

ANNUAL AGE-ADJUSTED[1] CANCER INCIDENCE RATES[2]

by Primary Cancer Site, 1993-1997

Massachusetts, MALES

Site or Type	1993	1994	1995	1996	1997
All Cancers	493.3	469.8	472.1	478.1	484.4
Brain & Central Nervous System	7.9	9.7	7.1	7.2	8.3
Breast	1.4	1.5	1.3	1.9	1.5
Bronchus & Lung	81.3	79.3	74.8	74.0	76.7
Colon / Rectum	62.7	61.7	57.3	59.7	58.3
Esophagus	7.9	9.5	9.7	8.6	8.3
Hodgkin's Disease	4.3	3.9	3.6	4.4	3.2
Kidney & Renal Pelvis	13.7	14.2	14.5	13.1	14.1
Larynx	9.3	7.5	8.9	8.6	8.6
Leukemia	10.5	9.4	10.1	11.2	10.9
Liver & Intrahepatic Bile Ducts	4.6	4.3	4.3	4.9	5.9
Melanoma of Skin	12.9	12.3	13.8	14.9	15.6
Multiple Myeloma	4.2	4.0	4.7	4.7	4.4
Non-Hodgkin's Lymphoma	17.9	17.7	19.1	19.7	18.6
Oral Cavity & Pharynx	16.8	16.4	15.4	16.0	14.0
Pancreas	9.2	8.3	8.5	8.5	11.2
Prostate	152.8	138.4	144.6	145.4	150.2
Stomach	10.8	9.8	10.3	9.6	10.8
Testis	4.6	5.4	5.4	4.7	4.2
Thyroid	2.5	2.2	2.8	3.4	2.7
Urinary Bladder	23.8	21.2	23.6	24.6	24.9

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 males

ANNUAL AGE-ADJUSTED[1] CANCER INCIDENCE RATES[2]
by Primary Cancer Site, 1993-1997
Massachusetts, FEMALES

Site or Type	1993	1994	1995	1996	1997
All Cancers	355.0	346.4	357.8	354.5	364.4
Brain & Central Nervous System	7.7	6.3	5.1	5.0	5.5
Breast	116.9	115.0	118.6	116.0	118.3
Bronchus & Lung	43.6	44.6	46.9	47.3	49.2
Cervix Uteri	7.7	7.6	7.5	7.9	7.7
Colon / Rectum	40.6	39.4	39.2	40.5	41.2
Corpus Uteri & Uterus, NOS	23.1	22.6	24.0	23.3	23.0
Esophagus	2.4	2.1	2.0	1.9	2.0
Hodgkin's Disease	2.9	3.0	2.4	2.4	3.1
Kidney & Renal Pelvis	7.0	6.7	7.4	6.1	5.9
Larynx	2.5	2.0	2.0	2.0	1.6
Leukemia	6.0	6.2	6.9	6.9	6.3
Liver & Intrahepatic Bile Ducts	1.4	1.4	1.7	1.2	1.6
Melanoma of Skin	9.0	8.4	8.5	9.5	10.2
Multiple Myeloma	3.2	3.1	2.9	3.1	3.0
Non-Hodgkin's Lymphoma	12.1	11.6	13.2	13.1	13.4
Oral Cavity & Pharynx	6.7	6.1	5.4	6.0	6.0
Ovary	14.7	14.1	15.5	14.5	13.7
Pancreas	6.7	5.9	7.1	6.9	7.9
Stomach	4.5	3.6	4.4	4.0	4.7
Thyroid	6.0	6.4	6.2	6.4	7.1
Urinary Bladder	6.2	5.3	6.6	7.0	6.5

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 females

ANNUAL AGE-ADJUSTED[1] CANCER INCIDENCE RATES[2]
by Primary Cancer Site, 1993-1997
Massachusetts, TOTAL

Site or Type	1993	1994	1995	1996	1997
All Cancers	408.2	394.8	402.3	403.0	411.7
Brain & Central Nervous System	7.8	7.8	6.0	6.0	6.7
Breast	65.1	64.0	65.7	64.3	65.4
Bronchus & Lung	59.3	59.0	58.4	58.1	60.5
Cervix Uteri	7.7	7.6	7.5	7.9	7.7
Colon / Rectum	49.8	48.8	46.6	48.3	48.2
Corpus Uteri & Uterus, NOS	23.1	22.6	24.0	23.3	23.0
Esophagus	4.8	5.3	5.4	4.9	4.8
Hodgkin's Disease	3.6	3.4	2.9	3.4	3.2
Kidney & Renal Pelvis	9.8	10.0	10.5	9.1	9.5
Larynx	5.5	4.4	5.0	4.9	4.7
Leukemia	7.9	7.6	8.2	8.8	8.2
Liver & Intrahepatic Bile Ducts	2.8	2.6	2.9	2.9	3.5
Melanoma of Skin	10.5	10.0	10.6	11.7	12.5
Multiple Myeloma	3.6	3.4	3.6	3.8	3.6
Non-Hodgkin's Lymphoma	14.8	14.3	15.8	16.0	15.7
Oral Cavity & Pharynx	11.1	10.7	9.9	10.4	9.6
Ovary	14.7	14.1	15.5	14.5	13.7
Pancreas	7.8	7.0	7.8	7.5	9.3
Prostate	152.8	138.4	144.6	145.4	150.2
Stomach	7.1	6.1	6.8	6.4	7.2
Testis	4.6	5.4	5.4	4.7	4.2
Thyroid	4.3	4.4	4.6	4.9	4.9
Urinary Bladder	13.3	11.9	13.5	14.2	14.1

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 residents, except for single-sex sites -- per 100,000 females for Cervix Uteri; Corpus Uteri & Uterus, NOS; and Ovary; per 100,000 males for Prosta

APPENDIX III

ANNUAL AGE-ADJUSTED[1] CANCER MORTALITY RATES[2]

by Primary Cancer Site, 1993-1997

Massachusetts, MALES

Site or Type	1993	1994	1995	1996	1997
All Cancers	222.9	221.8	220.5	217.2	207.1
Brain & Central Nervous System	5.4	4.9	4.7	5.6	4.3
Breast	0.2	0.4	0.3	0.3	0.3
Bronchus & Lung	65.6	67.5	66.8	64.3	61.8
Colon / Rectum	25.8	25.2	24.8	23.0	22.3
Esophagus	6.3	7.1	8.0	7.4	7.4
Hodgkin's Disease	0.7	0.6	0.6	0.8	0.3
Kidney & Renal Pelvis	5.6	4.8	5.2	5.2	5.2
Larynx	3.1	2.6	2.4	2.7	2.3
Leukemia	8.8	7.4	8.3	8.3	7.3
Liver & Intrahepatic Bile Ducts	4.6	5.3	5.9	5.9	6.1
Melanoma of Skin	3.9	3.9	2.7	3.7	3.8
Multiple Myeloma	3.6	4.2	3.7	3.6	3.7
Non-Hodgkin's Lymphoma	8.2	8.9	9.2	10.1	8.7
Oral Cavity & Pharynx	4.5	4.2	4.7	3.5	3.8
Pancreas	10.2	10.4	10.0	10.1	10.2
Prostate	26.0	25.4	23.6	24.3	22.6
Stomach	6.8	7.1	7.1	7.0	6.1
Testis	0.1	0.2	0.3	0.4	0.3
Thyroid	0.4	0.4	0.4	0.3	0.5
Urinary Bladder	6.3	6.5	6.3	7.3	6.8

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 males

ANNUAL AGE-ADJUSTED[1] CANCER MORTALITY RATES[2]
by Primary Cancer Site, 1993-1997
Massachusetts, FEMALES

Site or Type	1993	1994	1995	1996	1997
All Cancers	152.4	147.7	148.2	144.3	143.7
Brain & Central Nervous System	3.6	3.0	3.3	2.6	3.1
Breast	29.2	28.1	27.5	24.7	24.5
Bronchus & Lung	36.9	35.1	36.4	37.0	37.1
Cervix Uteri	2.2	1.8	2.0	2.1	1.9
Colon / Rectum	17.2	16.1	16.4	15.6	15.0
Corpus Uteri & Uterus, NOS	3.2	3.2	3.3	3.5	3.1
Esophagus	1.7	1.9	1.5	1.8	1.5
Hodgkin's Disease	0.5	0.6	0.4	0.4	0.4
Kidney & Renal Pelvis	2.3	2.3	2.3	2.3	1.9
Larynx	0.5	0.6	0.5	0.4	0.6
Leukemia	4.6	4.7	4.8	4.4	4.2
Liver & Intrahepatic Bile Ducts	1.9	1.7	2.2	1.7	2.3
Melanoma of Skin	1.8	1.9	2.0	2.0	2.0
Multiple Myeloma	2.4	2.3	2.5	2.4	2.2
Non-Hodgkin's Lymphoma	6.1	6.4	5.6	5.4	6.3
Oral Cavity & Pharynx	1.2	1.2	1.6	1.3	1.2
Ovary	8.0	8.6	6.7	7.9	7.3
Pancreas	7.5	7.2	7.8	7.3	7.6
Stomach	3.2	3.0	2.9	2.8	2.7
Thyroid	0.3	0.3	0.3	0.3	0.4
Urinary Bladder	1.8	2.1	1.9	1.8	2.1

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 females

ANNUAL AGE-ADJUSTED[1] CANCER MORTALITY RATES[2]
by Primary Cancer Site, 1993-1997
Massachusetts, TOTAL

Site or Type	1993	1994	1995	1996	1997
All Cancers	179.0	176.1	175.8	172.1	167.5
Brain & Central Nervous System	4.3	3.8	3.9	4.0	3.6
Breast	16.7	16.1	15.8	14.3	14.0
Bronchus & Lung	48.5	48.3	48.7	47.9	46.9
Cervix Uteri	2.2	1.8	2.0	2.1	1.9
Colon / Rectum	20.6	19.7	19.7	18.5	18.0
Corpus Uteri & Uterus, NOS	3.2	3.2	3.3	3.5	3.1
Esophagus	3.7	4.1	4.3	4.2	4.0
Hodgkin's Disease	0.6	0.6	0.5	0.6	0.3
Kidney & Renal Pelvis	3.6	3.4	3.5	3.6	3.3
Larynx	1.6	1.5	1.3	1.4	1.3
Leukemia	6.3	5.8	6.2	6.0	5.4
Liver & Intrahepatic Bile Ducts	3.0	3.2	3.7	3.5	4.0
Melanoma of Skin	2.7	2.7	2.3	2.7	2.7
Multiple Myeloma	2.9	3.1	2.9	2.8	2.8
Non-Hodgkin's Lymphoma	6.9	7.4	7.1	7.3	7.3
Oral Cavity & Pharynx	2.6	2.5	3.0	2.3	2.3
Ovary	8.0	8.6	6.7	7.9	7.3
Pancreas	8.5	8.7	8.8	8.5	8.8
Prostate	26.0	25.4	23.6	24.3	22.6
Stomach	4.7	4.7	4.6	4.5	4.1
Testis	0.1	0.2	0.3	0.4	0.3
Thyroid	0.4	0.4	0.3	0.3	0.4
Urinary Bladder	3.5	3.8	3.5	3.9	3.9

[1] age-adjusted to the 1970 U.S. Standard Population

[2] per 100,000 residents, except for single-sex sites -- per 100,000 females for Cervix Uteri; Corpus Uteri & Uterus, NOS; and Ovary; per 100,000 males for Prosta

APPENDIX IV

AGE-SPECIFIC INCIDENCE RATES[1] for Selected Cancer Sites by Sex

Massachusetts Residents, 1993-1997

Cancer Site / Type	*Age Group*	*Males*	*Females*	*Total*
All Sites	0-19	18.30	16.30	17.32
	20-44	77.25	123.76	100.62
	45-64	727.34	699.12	712.70
	65-74	2708.62	1546.71	2052.55
	75-84	3122.76	1833.85	2306.11
	85+	3046.65	1595.07	1946.36
Brain & Central Nervous System	0-19	2.90	2.56	2.73
	20-44	4.23	3.33	3.78
	45-64	13.03	9.50	11.20
	65-74	28.07	21.17	24.18
	75-84	30.02	18.53	22.74
	85+	21.87	11.38	13.92
Breast	0-19	0.00	0.00	0.00
	20-44	0.16	46.60	23.49
	45-64	2.53	275.00	143.84
	65-74	7.70	452.02	258.58
	75-84	11.79	473.59	304.39
	85+	13.77	366.12	280.85
Bronchus & Lung	0-19	0.08	0.11	0.09
	20-44	4.84	4.70	4.77
	45-64	123.37	89.91	106.01
	65-74	471.54	267.77	356.48
	75-84	511.71	251.81	347.04
	85+	402.49	111.18	181.68
Cervix Uteri	0-19	- - - -	0.05	- - - -
	20-44	- - - -	9.95	- - - -
	45-64	- - - -	15.55	- - - -
	65-74	- - - -	16.02	- - - -
	75-84	- - - -	14.70	- - - -
	85+	- - - -	12.41	- - - -
Colon / Rectum	0-19	0.03	0.11	0.06
	20-44	4.50	4.25	4.38
	45-64	77.89	56.43	66.76
	65-74	342.53	211.36	268.46
	75-84	506.55	355.35	410.75
	85+	590.38	398.44	444.89

[1] per 100,000

AGE-SPECIFIC INCIDENCE RATES[1] for Selected Cancer Sites by Sex
Massachusetts Residents, 1993-1997

Cancer Site / Type	*Age Group*	*Males*	*Females*	*Total*
Corpus Uteri	0-19	- - - -	0.05	- - - -
& Uterus, NOS	20-44	- - - -	4.68	- - - -
	45-64	- - - -	56.28	- - - -
	65-74	- - - -	99.31	- - - -
	75-84	- - - -	95.97	- - - -
	85+	- - - -	53.78	- - - -
Esophagus	0-19	0.00	0.00	0.00
	20-44	0.53	0.08	0.30
	45-64	16.72	2.84	9.52
	65-74	46.21	12.89	27.40
	75-84	50.84	16.72	29.22
	85+	59.93	20.17	29.79
Hodgkin's	0-19	1.82	1.24	1.53
Disease	20-44	5.40	4.44	4.92
	45-64	4.09	2.47	3.25
	65-74	6.08	3.52	4.63
	75-84	4.61	3.73	4.05
	85+	5.67	3.10	3.72
Kidney &	0-19	0.78	0.84	0.81
Renal Pelvis	20-44	2.55	1.51	2.02
	45-64	26.96	12.43	19.43
	65-74	65.97	33.29	47.52
	75-84	77.73	33.45	49.67
	85+	61.55	21.20	30.97
Larynx	0-19	0.00	0.00	0.00
	20-44	0.98	0.17	0.57
	45-64	18.02	5.18	11.36
	65-74	46.01	9.77	25.54
	75-84	36.66	6.60	17.62
	85+	34.01	2.07	9.80
Leukemia	0-19	4.13	3.82	3.98
	20-44	3.14	2.71	2.93
	45-64	13.96	8.39	11.07
	65-74	41.35	21.41	30.09
	75-84	59.68	29.72	40.70
	85+	73.70	36.46	45.47

[1] per 100,000

AGE-SPECIFIC INCIDENCE RATES[1] for Selected Cancer Sites by Sex
Massachusetts Residents, 1993-1997

Cancer Site / Type	*Age Group*	*Males*	*Females*	*Total*
Liver & Intrahepatic Bile Ducts	0-19	0.25	0.16	0.21
	20-44	0.82	0.21	0.51
	45-64	8.44	2.13	5.17
	65-74	26.35	8.52	16.28
	75-84	25.42	9.59	15.39
	85+	26.72	10.34	14.31
Melanoma of Skin	0-19	0.30	0.42	0.36
	20-44	6.38	7.52	6.95
	45-64	25.80	18.30	21.91
	65-74	53.51	27.50	38.82
	75-84	74.97	31.00	47.11
	85+	85.84	28.44	42.33
Multiple Myeloma	0-19	0.00	0.00	0.00
	20-44	0.29	0.30	0.29
	45-64	6.82	5.71	6.24
	65-74	22.50	15.78	18.71
	75-84	37.02	20.56	26.59
	85+	32.39	18.87	22.15
Non-Hodgkin's Lymphoma	0-19	1.82	1.11	1.47
	20-44	9.37	5.08	7.21
	45-64	29.45	19.90	24.50
	65-74	76.51	58.13	66.13
	75-84	104.26	78.40	87.87
	85+	115.00	71.62	82.12
Oral Cavity & Pharynx	0-19	0.28	0.32	0.30
	20-44	3.91	1.59	2.74
	45-64	34.91	12.25	23.16
	65-74	64.66	25.94	42.80
	75-84	69.08	30.78	44.81
	85+	82.60	25.86	39.59
Ovary	0-19	- - - -	0.79	- - - -
	20-44	- - - -	7.33	- - - -
	45-64	- - - -	32.61	- - - -
	65-74	- - - -	53.05	- - - -
	75-84	- - - -	48.57	- - - -
	85+	- - - -	37.23	- - - -

[1] per 100,000

AGE-SPECIFIC INCIDENCE RATES[1] for Selected Cancer Sites by Sex
Massachusetts Residents, 1993-1997

Cancer Site / Type	*Age Group*	*Males*	*Females*	*Total*
Pancreas	0-19	0.00	0.00	0.00
	20-44	0.82	0.48	0.65
	45-64	14.86	10.46	12.58
	65-74	51.18	39.85	44.78
	75-84	60.05	52.94	55.55
	85+	73.70	53.26	58.21
Prostate	0-19	0.08	- - - -	- - - -
	20-44	0.87	- - - -	- - - -
	45-64	209.97	- - - -	- - - -
	65-74	1028.91	- - - -	- - - -
	75-84	930.22	- - - -	- - - -
	85+	719.14	- - - -	- - - -
Stomach	0-19	0.03	0.03	0.03
	20-44	1.06	0.84	0.95
	45-64	15.13	5.65	10.21
	65-74	51.18	20.00	33.57
	75-84	82.89	38.88	55.01
	85+	118.24	47.83	64.87
Testis	0-19	0.88	- - - -	- - - -
	20-44	11.60	- - - -	- - - -
	45-64	4.32	- - - -	- - - -
	65-74	1.11	- - - -	- - - -
	75-84	1.29	- - - -	- - - -
	85+	0.00	- - - -	- - - -
Thyroid	0-19	0.20	0.74	0.46
	20-44	3.06	9.79	6.44
	45-64	5.49	10.95	8.32
	65-74	5.78	9.53	7.90
	75-84	5.71	8.52	7.49
	85+	4.05	9.05	7.84
Urinary Bladder	0-19	0.03	0.05	0.04
	20-44	1.43	0.62	1.02
	45-64	30.09	9.29	19.30
	65-74	128.70	35.01	75.80
	75-84	212.57	50.17	109.67
	85+	268.87	62.05	112.11

[1] per 100,000

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